FORM PTO-1390 (REV. 5-93)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 67190/978560

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)
09/424807

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATES CLAIMED
PCT/DE98/01521	(28.05.98) 28 May 1998	(29.05.97) 29 May 1997

TITLE OF INVENTION
REMOTE-CONTROLLED MONITORING ARRANGEMENT FOR AN ELECTRONIC OVERCURRENT TRIP DEVICE

APPLICANT(S) FOR DO/EO/US
ETTE, Bernd; KRAUSS, Andreas; REHAAG, Hans and PANCKE, Andreas

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) immediately rather than delay applicable time limit set in 35 U.S.C. examination until the expiration of the 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (unsigned)
10. ☒ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
    ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information: copy of Preliminary Examination Report and PCT/RO/101.

Express Mail No.: EM360462745US

420 Rec'd PCT/PTO 29 NOV 1999

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5) 09/424807	INTERNATIONAL APPLICATION NO. PCT/DE98/01521	ATTORNEY'S DOCKET NUMBER 67190/978560

17. ☒ The following fees are submitted:

Basic National Fee (37 CFR 1.492(a)(1)-(5)):

Search Report has been prepared by the EPO or JPO $840.00
International preliminary examination fee paid to USPTO (37 CFR 1.482) . . . $670.00
No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) $750.00
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO $970.00
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) $96.00

	CALCULATIONS	PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 840	
Surcharge of $130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$	

Claims	Number Filed	Number Extra	Rate		
Total Claims	5 - 20 =	0	X $18.00	$ 0	
Independent Claims	1 - 3 =	0	X $78.00	$ 0	
Multiple dependent claim(s) (if applicable)			+ $260.00	$	
TOTAL OF ABOVE CALCULATIONS =				$ 840	
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				$	
SUBTOTAL =				$ 840	
Processing fee of $130.00 for furnishing the English translation later the ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +				$	
TOTAL NATIONAL FEE =				$ 840	
Fee for recording the enclosed assignment (37 CFR 1 21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property +				$	
TOTAL FEES ENCLOSED =				$ 840	
				Amount to be: refunded	$
				charged	$

a. ☐ A check in the amount of $_____ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. 11-0600 in the amount of **$840.00** to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to 11-0600. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) Deposit Account No. or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

Richard L. Mayer
By: Mary C. Werner Reg No 30,333
SIGNATURE

Kenyon & Kenyon
One Broadway
New York, New York 10004

Richard L. Mayer, Reg. No. 22,490
NAME

11/29/99
DATE

237406

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Bernd ETTE et al.
Serial No.	:	To Be Assigned
Filed	:	Herewith
For	:	REMOTE-CONTROLLED MONITORING ARRANGEMENT FOR AN ELECTRONIC OVERCURRENT TRIP DEVICE
Examiner	:	To Be Assigned
Art Unit	:	To Be Assigned

Assistant Commissioner
for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

SIR:

Kindly amend the above-identified application before examination, as set forth below.

IN THE SPECIFICATION:

Please amend the specification as set forth below.

On page 1, delete line 1, and insert:
--FIELD OF THE INVENTION--.

On page 1, before line 10, insert:
--BACKGROUND INFORMATION--.

On page 1, line 10, change "embodiments of" to --remote-controlled--, and change "of the type mentioned in" to --for monitoring and manipulating electronic overcurrent trip devices are described in, for example--.

On page 1, delete line 11.

On page 1, line 12, delete "following patent publications:", after "Patent" insert --No.--, and delete "C2".

EM360462745US

On page 1, line 13, change "3,918,566,A" to --4,918,566--, and change "5,373,412,A" to --5,373,412--.

On page 1, before line 21, insert:
--A method for monitoring and controlling electronic devices, and for manipulating operating parameters via networks such as the international telephone network, is described in, for example, PCT Application WO 94/28635. German Patent No. 296 00 609 describes the use of the Internet communication interface, employing TCP/IP protocol in a programmable controller. This device is used to control industrial processes and/or machines, requiring the use of variable programs, depending on the application. These programs are supplied to the controller in the form of software function modules via the Internet communication interface. In industrial control processes of this type, the devices to be controlled and the remote control systems used to control them are on different levels. On the bottom level are the loads or field devices that are operated by a control program provided on the higher control levels.

SUMMARY--.

On page 1, line 21, change "In practice, however, the" to --The problem of exchanging data across great distances can also be seen in the field of electrical power supplies, in particular circuit breakers that are equipped with electronic overcurrent trip devices. The--.

On page 1, line 30, change "The" to --An--.

On page 2, delete lines 2-8, and insert:
--providing an arrangement for the remote-controlled monitoring of an overcurrent trip device of an electric circuit breaker. An interface is programmed to output status messages and receive control commands. At least one page in HTML format is provided for retrieval from a memory area of the overcurrent trip device.--.

On page 2, delete lines 27-29, and insert:
--need. This eliminates the need for special remote control bus systems (such as Profibus or similar systems) as is currently the case in connection with conventional systems. Furthermore, one HTML formatted page contains a relatively small amount of data. This greatly limits the volume of data, i.e., improves the data transmission for a given volume of data. One reason for this is that a page created in HTML formal is provided for retrieval in the overcurrent trip device.

Another advantage can be obtained by designing the memory area as a read/write memory area for retrieving and storing at least one HTML page. In this case, both the operator and the manufacturer, i.e., the maintenance personnel, of the circuit-breaker can store or replace modified HTML pages in the overcurrent trip device.

An arrangement may also be provided for--.

On page 3, delete lines 1-18, and insert:
--BRIEF DESCRIPTION OF THE DRAWING

The FIGURE shows a diagram of a monitoring arrangement according to an example embodiment of the present invention.

DETAILED DESCRIPTION--.

On page 4, line 20, after "selecting" insert --the--
.

IN THE ABSTRACT:

Please amend the abstract as follows.

Line 5, change ", including" to --is described. The arrangement includes--, and delete "(S1, S2, Sn)".

Line 7, change "including" to --includes--.

Line 8, delete "(NW1, NW2)" and "(PC1".

Line 9, delete "PC2)" and "(S1, S2, Sn)".

Line 10, delete "(U1, U2, Un)".

Delete line 13.

IN THE CLAIMS:

Please cancel claims 1-4, without prejudice.

Please add the following new claims:

5. (New) An arrangement for remote-controlled monitoring and manipulation of an overcurrent trip device, comprising:

an interface coupled to the overcurrent trip device outputting status messages associated with the overcurrent trip device and receiving control commands for the overcurrent trip device, the interface being coupled to a transmission line, the transmission line forming a part of a network which connects data processing devices, the interface being programmed to exchange data in HTML format based on TCP/IP protocol; and

a memory area of the overcurrent trip device storing at least one page in the HTML format for retrieval.

6. (New) The arrangement according to claim 5, wherein the memory area is a read/write memory.

7. (New) The arrangement according to claim 5, further comprising:

a switch for enabling and disabling a modification of tripping parameters by transmitting data to the interface.

8. (New) The arrangement according to claim 5, wherein the at least one page is accessed by a remote device via the interface.

9. (New) The arrangement according to claim 5, wherein the at least one page is modified by a remote device via the interface.

REMARKS

This Preliminary Amendment cancels, without prejudice, claims 1-4 in the underlying PCT Application No. PCT/DE98/01521, and adds new claims 5-9. The new claims conform the claims to U.S. Patent and Trademark Office rules and do not add new matter to the application.

The above amendments to the specification and the abstract are, inter alia, to conform the specification and the abstract to U.S. Patent and Trademark Office rules and to correct informalities. The amendments to the specification and the abstract do not add new matter.

The underlying PCT Application No. PCT/DE98/01521 includes an International Search Report, dated October 2, 1998. The Search Report includes a list of documents that were uncovered in the underlying PCT Application. A copy of the Search Report is included herewith.

The underlying PCT Application also includes an International Preliminary Examination Report, dated July 23, 1999. An English translation of the International Preliminary Examination Report and the annex thereto is included herewith.

It is respectfully submitted that the subject matter

of the present application is new, non-obvious, and useful. Prompt consideration and allowance of the application are respectfully requested.

Respectfully submitted,

KENYON & KENYON

Richard L. Mayer

Dated: 11/29/99

By: Mary C. Wamer, Reg No. 30,333

Richard L. Mayer
Reg. No. 22,490
One Broadway
New York, N.Y. 10004
(212) 425-7200 (telephone)
(212) 425-5288 (facsimile)

237252v1

REMOTE-CONTROLLED MONITORING ARRANGEMENT FOR AN ELECTRONIC OVERCURRENT TRIP DEVICE

Background Information

The present invention relates to an arrangement for monitoring and manipulating an electronic overcurrent trip device of an electric circuit-breaker by remote control, with the overcurrent trip device having an interface for outputting status messages and receiving control commands, and the interface being connected to a transmission line.

Various embodiments of arrangements of the type mentioned in the preamble have been made known. Examples include the following patent publications: German Patent 31 22 109 C2, U.S. Patent 3,918,566,A, and U.S. Patent 5,373,412,A. These arrangements use special data transmission protocols on the transmission line. Unless special local networks are used, the data can also be transmitted over power lines, if the arrangement concerned is to be used by the central load distribution system of a utility company for the remote control of service switches.

In practice, however, the main concern is not only to connect the overcurrent trip devices of circuit-breakers to a central control room, but also to give the manufacturer a means for the central monitoring and remote control of circuit-breakers and corresponding overcurrent trip devices. The currently available arrangements can meet this requirement only at considerable expense, because either a separate data network must be set up to connect the individual circuit-breakers to the switchgear manufacturer, or at least the data formats must be repeatedly converted. The object of the present invention is to provide a much more cost-effective and technically simpler means for maintaining circuit-breakers and overcurrent trip devices from a central control room.

According to the present invention, this object is achieved by the fact that the transmission line forms an integral part of a network that connects data processing devices and the interface of the overcurrent trip device is programmed to exchange data in HTML format based on the TCP/IP protocol series. This eliminates the need for special remote control bus systems (such as Profibus or similar systems) as is currently the case.

Data transmission using the TCP/IP protocol series for connecting computers (PCs) has been introduced worldwide via the Internet. As a result, PC-type data processing devices located anywhere in the world, including systems of different types, can be interconnected to exchange data. The HTML format used for this purpose enables information, i.e., data, to be entered and output directly, using other data sources or databases, regardless of whether they are connected directly to the data processing device in question or via the Internet.

Using a data transmission method based on the TCP/IP protocol series over an Internet connection enables the manufacturer of a circuit-breaker, for example, to check, on request, a circuit-breaker located anywhere in the world by interrogating its electronic overcurrent trip device and to transmit commands, data, or modified parameters to the latter as needed. Despite the ability made possible in this way to access the overcurrent trip device properties of circuit-breakers worldwide, it is possible to provide a means for preventing hazardous or unauthorized access. The simplest way to do this is to provide the overcurrent trip device with a switch that respectively enables or disables a modification of tripping parameters by transmitting data over the interface. This makes it possible to arrange, with the circuit-breaker operator, access by the manufacturer within a narrow time frame, thus preventing subsequent unauthorized access. Furthermore, encryption algorithms, passwords or similar security measures, like those employed for banking transactions over the Internet, can be used.

One page in HTML format contains a relatively small amount of data. According to the present invention, this fact is reflected in that at least one HTML page provided for retrieval is stored in a memory area of the overcurrent trip device. The advantage of this is that the scope of the data to be transmitted can be limited as needed. On average, this significantly saves memory space, considering the fact that one page is generally used for the largest data record needed.

Another advantage can be obtained by designing the above-mentioned memory area as a read/write memory area for retrieving and storing at least one HTML page. In this case, both the operator and the manufacturer, i.e., the maintenance personnel, of the circuit-breaker can store or replace modified HTML pages in the overcurrent trip device.

The present invention is explained in greater detail below on the basis of the embodiment illustrated in the figure.

The figure shows one circuit-breaker LS1 of a large number of circuit-breakers, a further circuit-breaker LS2, and a further circuit-breaker LSn, omitting the sequence numbers immediately following second circuit-breaker LS2. Each of these circuit-breakers has an overcurrent trip device U1, U2, and Un, respectively, which is equipped with an interface S1, S2, Sn. These interfaces connect circuit-breakers LS1, LS2, and LSn to networks NW1, NW2, which are formed by local segments of the Internet. The figure shows that parts of network NW1 and NW2 can be separated by great physical distances and can, for example, be located on different continents. In the illustrated example, they are connected to a satellite S via antennas A1 and A2, with satellite S ensuring that the connection is continuously available.

Any number of data processing devices in the form of personal computers PC1, PC2, etc. are connected to network NW1 and NW2. These data processing devices can belong to the operators of circuit-breakers LS1, LS2, etc. or to the manufacturers of these circuit breakers. An external modem M or a corresponding

internal modem card makes it possible to exchange data between a universally accessible public telephone network and the Internet.

A situation is described below in which a circuit-breaker operator would like to have the manufacturer check the corresponding overcurrent trip devices and modify parameter settings, if this appears to be necessary. One way to do this is for the operator to send a message to the manufacturer in writing, over the telephone, or over network NW1 and NW2, respectively. In this message, the operator states the period of time during which he would like the maintenance work to be carried out, or expresses his willingness to make the overcurrent trip devices available for data transmission over network NW1 and NW2, respectively, on request at a specific point in time. Using his data processing device, e.g., PC1, the manufacturer then contacts the operator's electrical system in the same manner, by entering an Internet address, as is common practice with other Internet-based information and data services. By selecting correct overcurrent trip device U1, U2, etc., the manufacturer now receives a list of the recorded procedures on his screen. The scope of this record depends on the requirements of the operator and/or the manufacturer and requires the overcurrent trip device to be equipped with a data memory. Data that could be useful in the present situation can be, in particular, tripping events with an indication of the overcurrent value. The manufacturer can now use the data stored in data processing device PC1 or an external database DB to determine whether the tripping events lie within a preset range or whether it is appropriate to set modified tripping parameters, taking into account the configuration of the operator's system. If the parameters can be set, the manufacturer can now program overcurrent trip device U1 directly by transmitting a modified set of parameters. For operator security purposes, the changes made can be confirmed or logged for the operator, allowing the operator to interrupt any further access and thus prevent other changes from being made to parameters. Conversely, the manufacturer can be granted continued access so that he can

make sure that the changes made to the set parameters were effective, i.e., had the desired effect.

The above-mentioned display that appears on the screen of data processing device PC1 during the maintenance work is preferably at least one page in HTML format that is retrievably stored in a memory area of the selected overcurrent trip device, e.g., memory area SP1 in overcurrent trip device U1 of circuit-breaker LS1. This HTML page forms the framework and the user interface for reading and modifying data. The circuit-breaker user himself can provide the HTML page, thus specifying which data is accessible for the maintenance work. According to another possible configuration, the manufacturer of the circuit-breaker, i.e., the maintenance personnel entrusted with the work, provides the HTML page and replaces or modifies it as needed during the course of maintenance work. This is made possible by the fact that the memory area is designed as a read/write memory area, and write mode is enabled, i.e., can be enabled by transmitting a password.

Patent Claims

1. An arrangement for monitoring and manipulating an electronic overcurrent trip device (U1, U2, Un) of an electric circuit-breaker (LS1, LS2, LSn) by remote control, with the overcurrent trip device (U1, U2, Un) having an interface (S1, S2, Sn) for outputting status messages and receiving control commands and the interface (S1, S2, Sn) being connected to a transmission line,
characterized in that the transmission line forms an integral part of a network (NW1, NW2) that connects data processing devices (PC1, PC2); and the interface (S1, S2, Sn) of the overcurrent trip device (U1, U2, Un) is programmed to exchange data in HTML format based on the TCP/IP protocol series.

2. The arrangement according to Claim 1,
characterized in that the overcurrent trip device (U1, U2, Un) has a switch that respectively enables and disables a modification of tripping parameters by transmitting data over the interface (S1, S2, Sn).

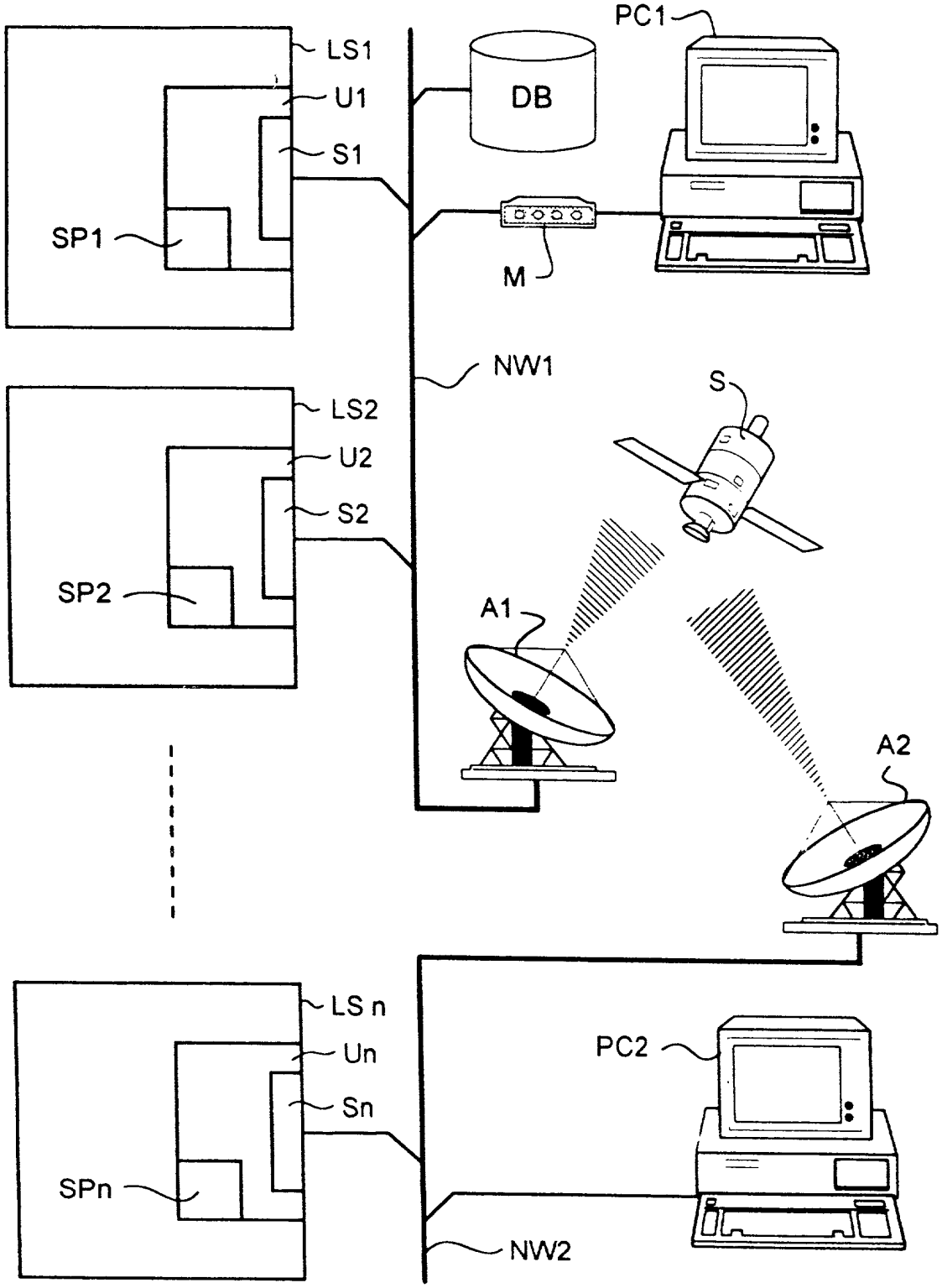
3. The arrangement according to Claim 1,
characterized in that at least one page in HTML format provided for retrieval is stored in a memory area (SP1, SP2, SPn) of the overcurrent trip device (U1, U2, Un).

4. The arrangement according to Claim 3,
characterized in that the memory area (SP1, SP2, SPn) is designed as a read/write memory area for retrieving and storing at least one page in HTML format.

Abstract

An arrangement for monitoring and manipulating an electronic overcurrent trip device of a circuit-breaker by remote control, including an interface (S1, S2, Sn) for outputting status messages and receiving control commands, and also including a transmission line which is an integral part of a network (NW1, NW2) that connects data processing devices (PC1, PC2). The interface (S1, S2, Sn) of the overcurrent trip device (U1, U2, Un) is programmed to exchange data in HTML format based on the TCP/IP protocol series.

FIG.


PC1
LS1
U1
S1
DB
SP1
M
NW1
S
LS2
U2
S2
SP2
A1
A2
LS n
Un
Sn
PC2
SPn
NW2

#4

67190/978560

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	ETTE et al.
International Application No.	:	PCT/DE98/01521
International Filing Date	:	May 28, 1998
U.S. Serial No.	:	09/424,807
For	:	**REMOTE-CONTROLLED MONITORING ARRANGEMENT FOR AN ELECTRONIC OVERCURRENT TRIP DEVICE**

Assistant Commissioner for Patents
Box PCT
Washington, D.C. 20231

Attention: DO/EO/US

RESPONSE TO MISSING REQUIREMENTS UNDER 35 U.S.C. 371

S I R :

In response to the Notification of Missing Requirements Under 35 U.S.C. 371 in the United States Designated/Elected Office (DO/EO/US) (mailed February 22, 2000), Applicants submit herewith a fully executed Declaration, in order to complete the filing requirements for the U.S. national phase of the above-identified PCT application. The application filed in the Patent Office is the application which the inventors executed by signing the Declaration and Power of Attorney. A copy of the Notification of Missing Requirements is enclosed.

The Office is authorized to charge the $130.00 fee to cover the surcharge for late filing of the Declaration to Deposit Account No. 11-0600. An additional copy of this letter is enclosed for this purpose.

Respectfully submitted,

KENYON & KENYON

(Reg. No 36091)

Date: 22 March 2000

Richard L. Mayer, Reg. No. 22,490

One Broadway
New York, NY 10004
Tel: (212) 425-7200
Fax: (212) 425-5288

EM360464931US

261743

#4

[67190/978560]

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **REMOTE-CONTROLLED MONITORING ARRANGEMENT FOR AN ELECTRONIC OVERCURRENT TRIP DEVICE,** for which an application for Letters Patent was filed as PCT Application No. **PCT/DE98/01521** on **May 28, 1998**.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application(s) for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)

Number	Country	Day/month/year filed	Priority Claimed Under 35 USC §119
197 22 898.4	Fed. Rep. of Germany	29 May 1997	YES

ENL 3100 A104 931 US

And I hereby appoint Richard L. Mayer (Reg. No. 22,490), Gerard A. Messina (Reg. No. 35,952), and Michelle M. Carniaux (Reg. No. 36,098) my attorneys with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Please address all communications regarding this application to:

KENYON & KENYON
One Broadway
New York, New York 10004

Please direct all telephone calls to Richard L. Mayer at (212) 425-7200.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful and false statements may jeopardize the validity of the application or any patent issued thereon.

Inventor: Bernd ETTE

Inventor's Signature: Bernd Ette

Date: 15.12.99

Residence: Am Walde 9
15528 Mönchwinkel DEX.
Federal Republic of Germany

Citizenship: Federal Republic of Germany

Post Office Address: Same as above.

2 - 00

Inventor: Andreas KRAUSS

Inventor's Signature: A. Krauß

Date: 15. 12. 1999

Residence: Wartburgstr. 31
10825 Berlin DEX
Federal Republic of Germany

Citizenship: Federal Republic of Germany

Post Office Address: Same as above.

3 - 00 Inventor: Hans REHAAG

Inventor's Signature: H. Rehaag

Date: 15.12.99

Residence: Ilsenburger Str. 21
16341 Zepernick DEX.
Federal Republic of Germany

Citizenship: Federal Republic of Germany

Post Office Address: Same as above.

4 - 00 Inventor: Andreas PANCKE

Inventor's Signature: _____

Date: 15.12.95

Residence: Bernauer Str. 47
13507 Berlin DEX
Federal Republic of Germany

Citizenship: Federal Republic of Germany

Post Office Address: Same as above.

237414